

title

Ai and robotics based on cardiovascular mortalities: current applications and future stabilization

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Abstract

cardiovascular diseases remain the leading cause of mortality

worldwide. recent advances in artificial intelligence (ai) and robotic technologies have improved early diagnosis, personalized treatment, robotic-assisted interventions, and remote patient monitoring. this paper reviews the impact of ai and robotics on reducing cardiovascular mortality and discusses future strategies for stabilizing mortality rates. evidence suggests that integrating ai algorithms with robotic systems can enhance clinical decision-making, reduce procedural complications, and improve long-term patient outcomes. however, ethical concerns, data privacy, and implementation costs remain significant challenges.

keywords

artificial intelligence, robotics, cardiovascular disease, mortality, machine learning, robotic surgery

introduction

cardiovascular disease (cvd) accounts for approximately 20.5 million deaths annually, representing nearly one-third of all global deaths. advances in ai and robotic technologies have transformed cardiovascular healthcare by improving diagnostic accuracy, optimizing treatment decisions, and enhancing surgical precision. machine learning models can identify patients at high risk for heart attacks, heart failure, and stroke before clinical symptoms become severe, while robotic-assisted procedures improve procedural safety and recovery times. this study examines the current role of ai and robotics in reducing cardiovascular mortality and explores future stabilization strategies.

methods

this review follows the imrad framework and is based on published literature indexed in databases such as pubmed, scopus, ieee xplora, and web of science. studies published between 2019 and 2026 addressing ai, robotics, cardiovascular disease, mortality prediction, robotic cardiac surgery, and remote monitoring were reviewed. emphasis was placed on systematic reviews, meta-analyses, randomized clinical trials, and international clinical guidelines.

results

ai-based electrocardiogram interpretation demonstrated diagnostic accuracy exceeding 90% in detecting arrhythmias and myocardial infarction. machine learning algorithms significantly improved prediction of cardiovascular mortality by integrating imaging, laboratory, and clinical variables. robotic-assisted cardiac surgery was associated with reduced postoperative complications, shorter hospital stays, and faster recovery compared with conventional surgery. wearable ai devices enabled continuous monitoring of blood pressure, heart rhythm, and heart failure symptoms, allowing earlier intervention and reducing hospital readmissions. despite these advances, disparities in access to technology and limited availability in low-resource settings remain barriers to widespread implementation.

discussion

ai and robotics have substantial potential to reduce cardiovascular mortality through earlier diagnosis, precision medicine, minimally invasive surgery, and continuous patient monitoring. future stabilization requires integrating ai into routine clinical practice, expanding robotic surgical programs,

improving healthcare infrastructure, and ensuring equitable access. regulatory oversight, algorithm transparency, cybersecurity, and clinician training are essential for safe implementation. combining ai with telemedicine and wearable technologies may further reduce mortality among high-risk populations.

conclusion

ai and robotics are transforming cardiovascular care and have the potential to significantly reduce mortality through improved diagnosis, treatment, and monitoring. continued technological innovation, ethical governance, and global collaboration will be essential for sustaining reductions in cardiovascular deaths and improving long-term patient outcomes.

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